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UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

| | |
|---|---|
| CELLULAR TRANSITIONS, LLC,<br><br>Plaintiffs,<br>v.<br><br>RAZER USA LTD.,<br><br>Defendant. | CASE NO. 8:18-cv-01583<br><br>**COMPLAINT FOR PATENT INFRINGEMENT**<br><br>**DEMAND FOR JURY TRIAL** |

Plaintiff Cellular Transitions, LLC ("CellTran"), by and through the undersigned counsel, hereby brings this action and makes the following allegations of patent infringement relating to U.S. Patent Nos. 8,855,637 ("the '637 patent") and 9,888,425 ("the '425 patent") against Razer USA Ltd. ("Razer"), and alleges as follows upon actual knowledge with respect to itself and its own acts, and upon information and belief as to all other matters:

## NATURE OF THE ACTION

1. This is an action for patent infringement. CellTran alleges that Razer infringes one or more claims of the '637 patent and the '425 patent, copies of which are attached as Exhibits A-B, respectively (collectively "the Asserted Patents").

## THE PARTIES

2. Plaintiff CellTran is a Texas limited liability company with its principal place of business in Plano, Texas.

3. Upon information and belief, Defendant Razer USA Ltd., is a Delaware corporation with a regular and established place of business at 9 Pasteur, Suite 100, Irvine, California 92618. Razer may be served with process through its registered agent, Michael Dilmagani, 9 Pasteur, Suite 100, Irvine California 92618.

## JURISDICTION AND VENUE

4. This action for patent infringement arises under the Patent Laws of the United States, 35 U.S.C. § 1 et. seq. This Court has original jurisdiction under 28 U.S.C. §§ 1331 and 1338.

5. This Court has both general and specific personal jurisdiction over Razer because Razer has committed acts within this District giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction over Razer would not offend traditional notions of fair play and substantial justice. Razer, directly and through subsidiaries and intermediaries (including distributors, retailers, franchisees and others), has committed and

continues to commit acts of infringement in this District by, among other things, making, using, testing, selling, importing, and/or offering for sale products that infringe the Asserted Patents.

6. Venue is proper in this district and division under 28 U.S.C. §§ 1391(b)-(d) and 1400(b) because Razer has committed acts of infringement in the Central District of California and has a regular and established place of business in the Central District of California.

**COUNT I – INFRINGEMENT OF U.S. PATENT NO. 8,855,637**

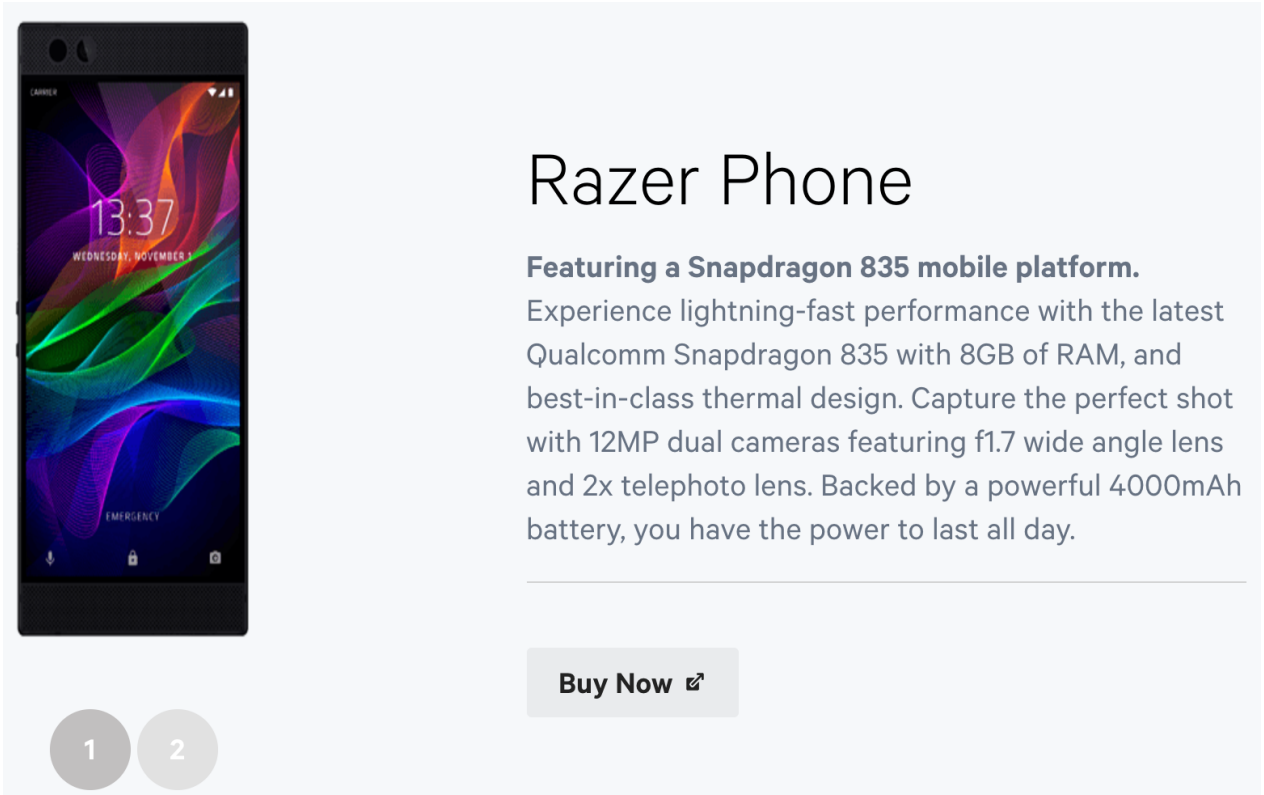
7. The allegations of paragraphs 1-6 of this Complaint are incorporated by reference as though fully set forth herein.

8. CellTran owns by assignment the entire right, title, and interest in the '637 patent.

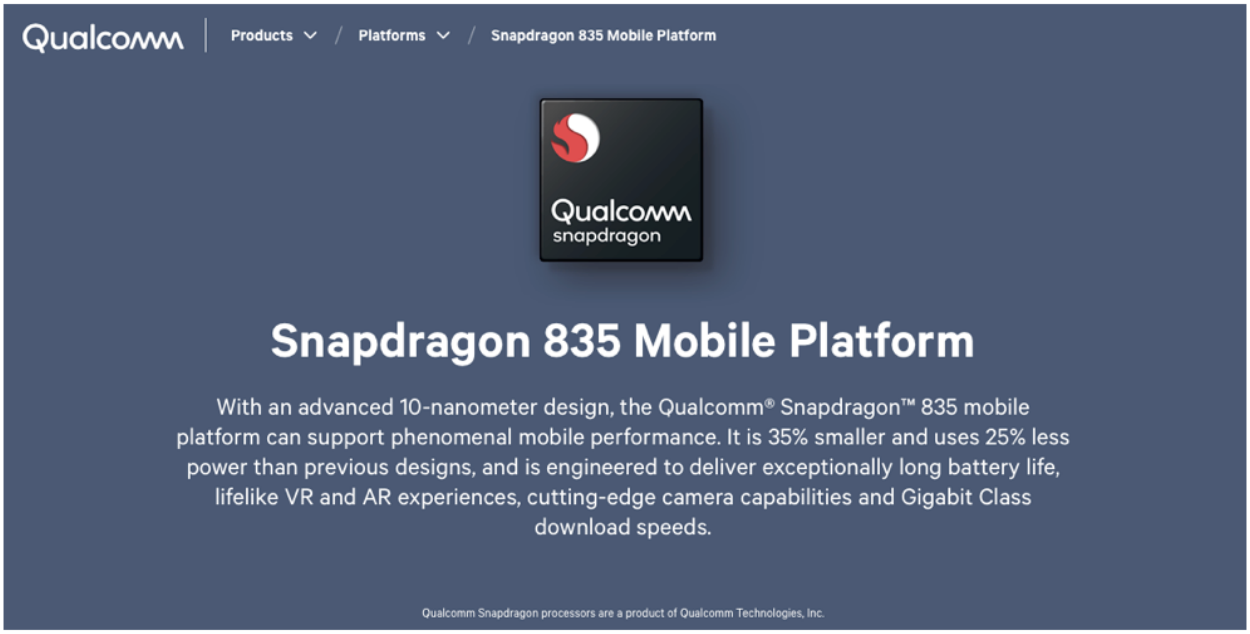
9. The '637 patent was issued by the United States Patent and Trademark Office on October 7, 2014, and is titled "Methods and Apparatus for Performing Handoff Based on the Mobility of a Subscriber Station." A true and correct copy of the '637 patent is attached as Exhibit A.

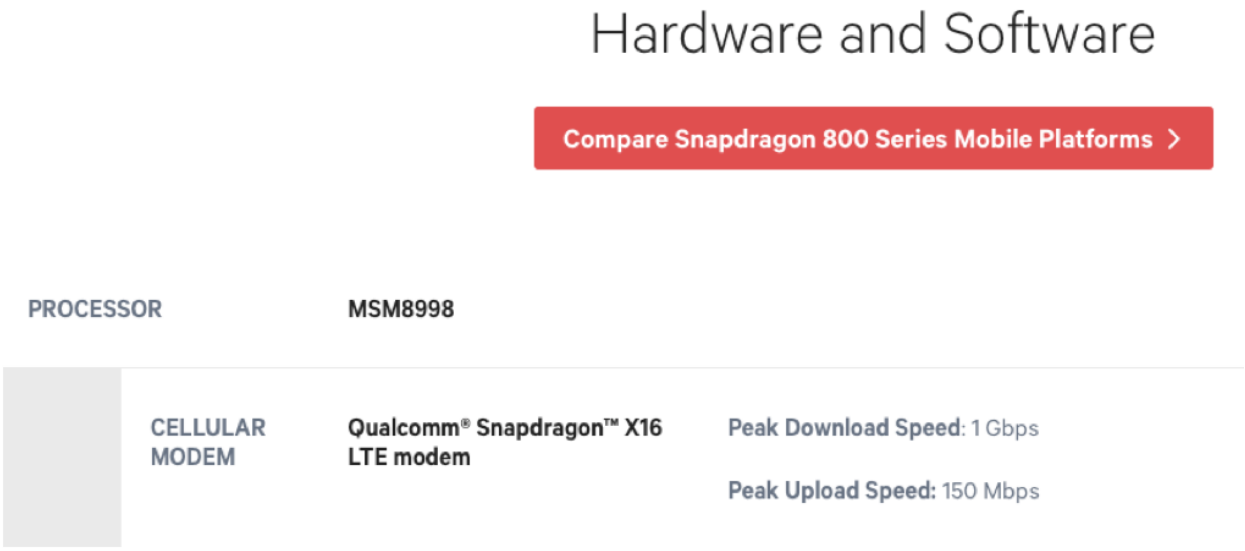
10. Upon information and belief, Razer has infringed at least claim 13 of the '637 patent by making, using, testing, selling, offering for sale, importing and/or licensing in the United States licensed assisted access (LAA) mobile devices, including at least the Razer Phone (collectively the "Accused Infringing Devices") in an exemplary manner as described below.

11. The Accused Infringing Devices are subscriber stations sometimes referred to as user equipment ("UE"), which support LTE-Advanced connectivity and LAA technology.

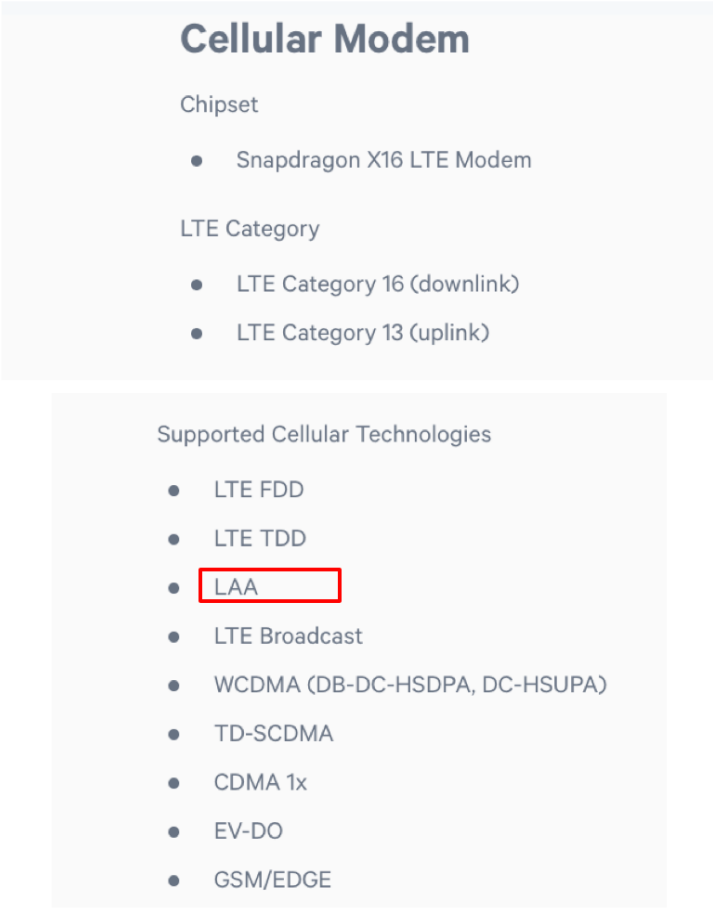



https://www.qualcomm.com/snapdragon/smartphones/razer-phone
https://support.razer.com/mobile/razer-phone






https://www.qualcomm.com/products/snapdragon/processors/835




https://www.qualcomm.com/products/snapdragon/modems/4g-lte/x16

12. The Accused Infringing Devices contain a front end module configured to establish a service with a base station via a non-licensed spectrum.

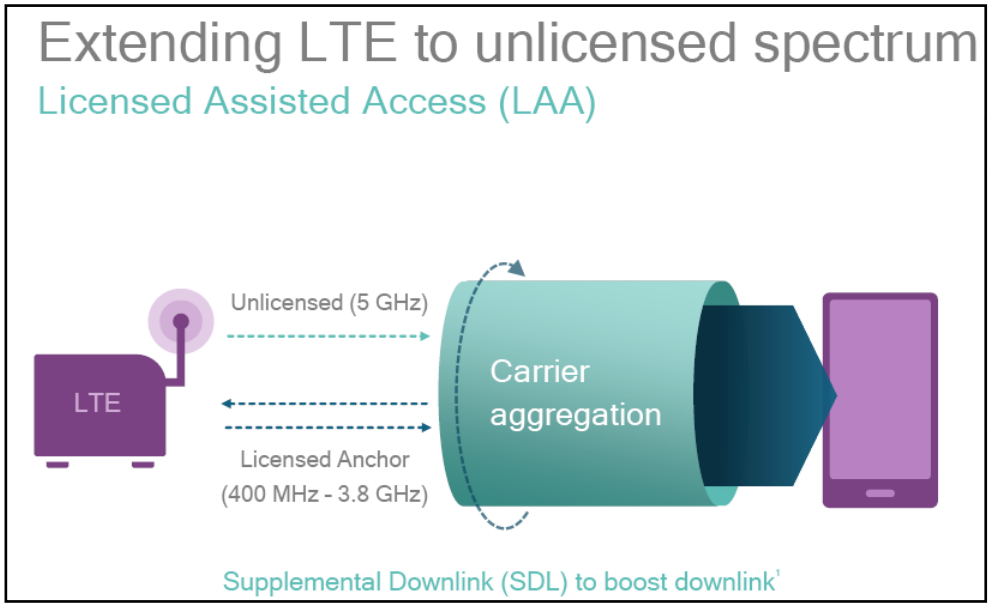
For example, the Accused Infringing Devices contain front end components that convert information into radio signals that can be transmitted and received over the air.

**RFFE (RF Front-End):**

RF Front End (RFFE) refers to a set of mobile device components that convert information into radio signals that can be transmitted and received over the air. RFFE components work in conjunction with a device's modem and antenna.

https://www.qualcomm.com/news/onq/2017/02/23/mwc-2017-fundamentals-cheat-sheet

13. Being LAA-enabled UE, the Accused Infringing Devices are configured to establish a service with a base station ("eNB") in a non-licensed (alternatively referred to as "unlicensed") spectrum.




https://www.qualcomm.com/media/documents/files/laa-webinar-feb-2016.pdf

14. The Accused Infringing Devices contain a mobility monitoring module. For example, the Accused Infringing Devices include a mobility monitoring module within its cellular baseband processor, such as the Qualcomm Snapdragon x16 LTE modem.
https://www.qualcomm.com/news/onq/2017/10/13/lg-v30-and-snapdragon-835-unite-premium-photography-security-and-mobile-vr

15. The mobility monitoring module in the Accused Infringing Devices is configured to determine a first value of a mobility factor indicative of a relative motion of the subscriber station communicating using non-licensed spectrum. For example, the Accused Infringing Devices will make radio resource management measurements representing one or more values of a mobility factor and report them to LTE LAA-enabled base stations.

## 5.5 Measurements

### 5.5.1 Introduction

The UE reports measurement information in accordance with the measurement configuration as provided by E-UTRAN. E-UTRAN provides the measurement configuration applicable for a UE in RRC_CONNECTED by means of dedicated signalling, i.e. using the *RRCConnectionReconfiguration* or *RRCConnectionResume* message.

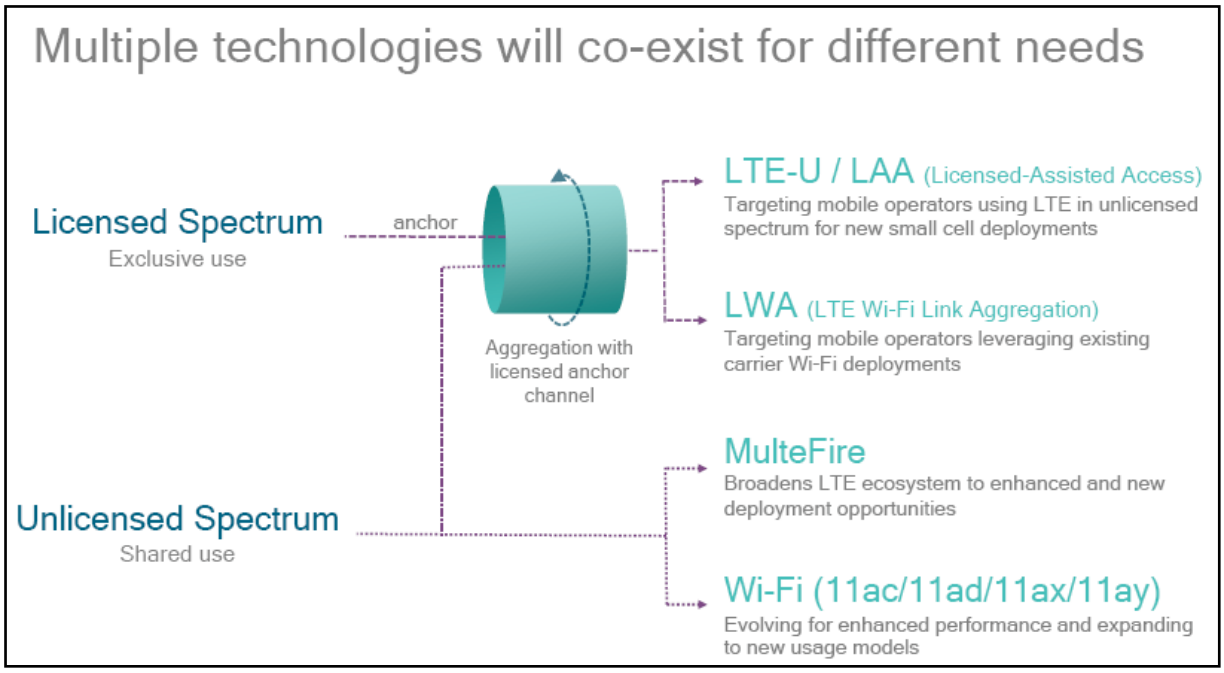
The UE can be requested to perform the following types of measurements:

- Intra-frequency measurements: measurements at the downlink carrier frequency(ies) of the serving cell(s).
- Inter-frequency measurements: measurements at frequencies that differ from any of the downlink carrier frequency(ies) of the serving cell(s).
- Inter-RAT measurements of UTRA frequencies.
- Inter-RAT measurements of GERAN frequencies.
- Inter-RAT measurements of CDMA2000 HRPD or CDMA2000 1xRTT or WLAN frequencies.

ETSI TS 136 331 V13.8.1 (2018-01)

https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/13.08.01_60/ts_136331v130801p.pdf

16. The mobility monitoring module in the Accused Infringing Devices is configured to determine availability of the service via a licensed spectrum. For example, the mobility monitoring module within the Qualcomm Snapdragon processors within the Accused Infringing Devices is also configured to communicate with a base station ("eNB") in a licensed spectrum to determine availability of the service.




https://www.qualcomm.com/documents/progress-laa-and-its-relationship-lte-u-and-multefire

17. The front end module in the Accused Infringing Devices is further configured to initiate transfer of the service to the licensed spectrum associated with the base station if the first value of the mobility factor indicates that the subscriber station has been in a high mobility state for at least a predetermined period of time. For example, an Accused Infringing Device ("UE") will trigger a measurement event that produces measurement results which, when processed by the base station ("eNB"), indicate that the UE is in a high mobility state, e.g., a UE's measurement results may indicate fast signal fades or rapidly increasing (or decreasing) received power from a neighbor cell (or serving cell). The reporting of these measurements by the UE's front end module will initiate a transfer of the service to the licensed spectrum. The UE will not report measurement results unless the UE has experienced conditions for triggering a measurement event for a predetermined period of time (referred to as the TimeToTrigger).

5.5.4.4 Event A3 (Neighbour becomes offset better than PCell/ PSCell)

The UE shall:

1> consider the entering condition for this event to be satisfied when condition A3-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition A3-2, as specified below, is fulfilled;

1> if *usePSCell* of the corresponding *reportConfig* is set to *true*:

2> use the PSCell for *Mp*, *Ofp and Ocp*;

1> else:

2> use the PCell for *Mp*, *Ofp and Ocp*;

NOTE The cell(s) that triggers the event is on the frequency indicated in the associated *measObject* which may be different from the frequency used by the PCell/ PSCell.

*Mn* is the measurement result of the neighbouring cell, not taking into account any offsets.

*Mp* is the measurement result of the PCell/ PSCell, not taking into account any offsets.

https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/13.08.01_60/ts_136331v130801p.pdf

– *TimeToTrigger*

The IE *TimeToTrigger* specifies the value range used for time to trigger parameter, which concerns the time during which specific criteria for the event needs to be met in order to trigger a measurement report. Value ms0 corresponds to 0 ms and behaviour as specified in 7.3.2 applies, ms40 corresponds to 40 ms, and so on.

*TimeToTrigger* information element

```
-- ASN1START

TimeToTrigger ::=                   ENUMERATED {
                                        ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256,
                                        ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560,
                                        ms5120}

-- ASN1STOP
```

ETSI TS 136 331 V13.8.1 (2018-01) at 6.3.5 (p. 437)
https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/13.08.01_60/ts_136331v130801p.pdf

5.5.4 Measurement report triggering

5.5.4.1 General

If security has been activated successfully, the UE shall:

1> for each *measId* included in the *measIdList* within *VarMeasConfig*:

2> if the *triggerType* is set to *event* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable cells for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig*, while the *VarMeasReportList* does not include an measurement reporting entry for this *measId* (a first cell triggers the event):

ETSI TS 136 331 V13.8.1 (2018-01)

18. Razer has thus infringed and continues to infringe at least claim 13 of the '637 patent by making, using, testing, selling, offering for sale, importing

and/or licensing the Accused Infringing Devices.

19. Razer's acts of direct infringement have caused, and continue to cause, damage to CellTran, and CellTran is entitled to recover damages sustained as a result of Razer's wrongful acts in an amount subject to proof at trial.

**COUNT II – INFRINGEMENT OF U.S. PATENT NO. 9,888,425**

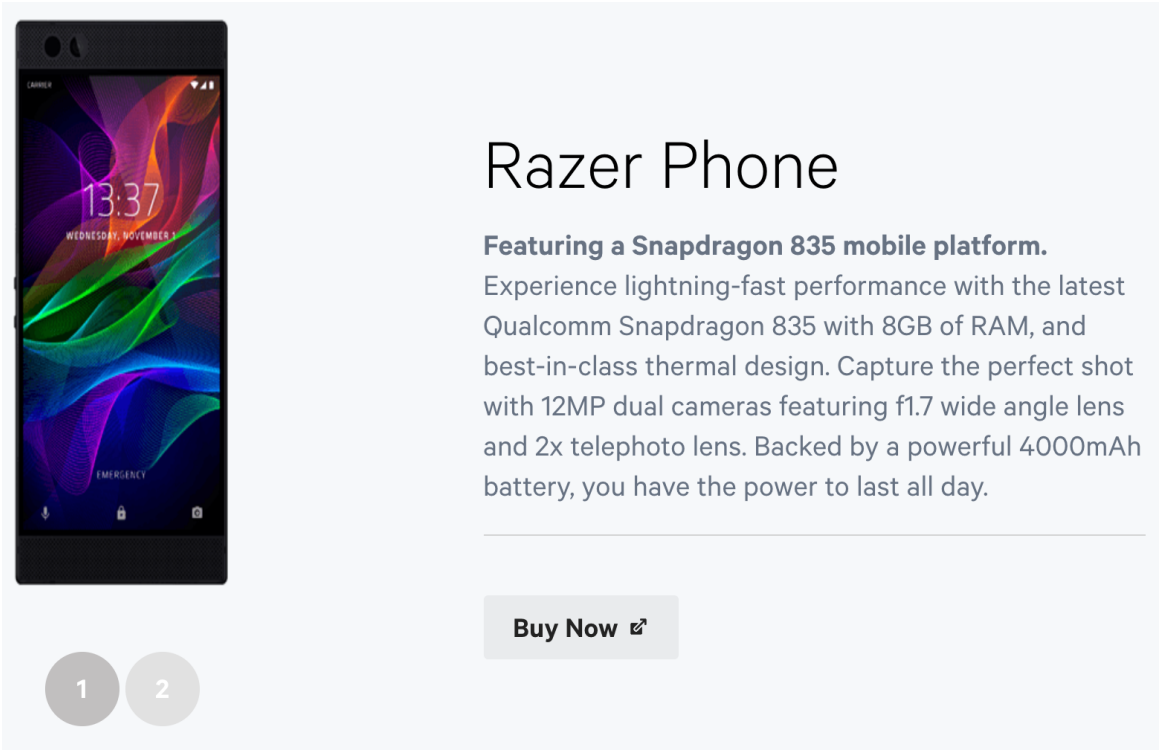
20. The allegations of paragraphs 1-6 of this Complaint are incorporated by reference as though fully set forth herein.

21. CellTran owns by assignment the entire right, title, and interest in the '425 patent.

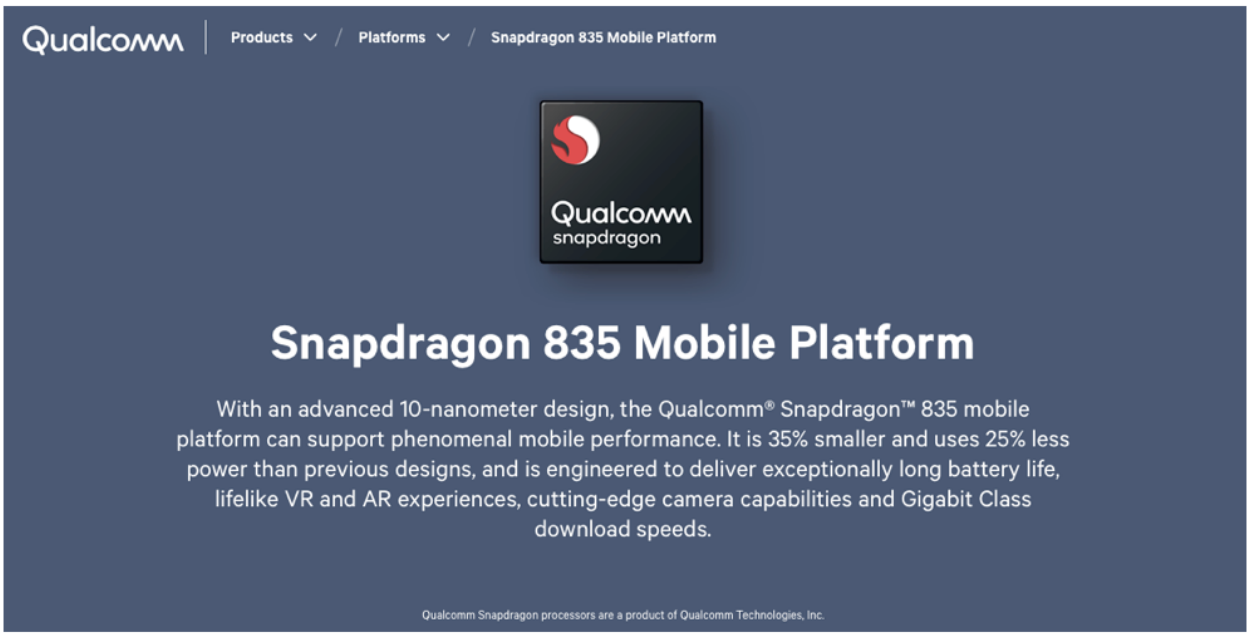
22. The '425 patent was issued by the United States Patent and Trademark Office on February 6, 2018, and is titled "Methods and Apparatus for Performing Handoff Based on the Mobility of a Subscriber Station." A true and correct copy of the '425 patent is attached as Exhibit B.

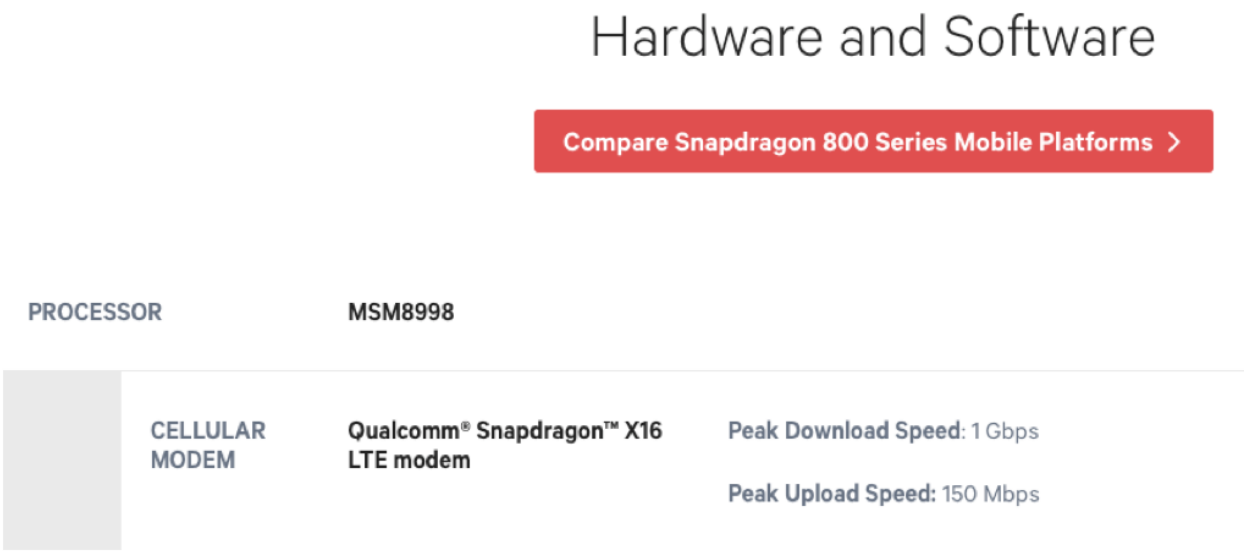
23. Upon information and belief, Razer has infringed at least claim 7 of the '425 patent by making, using, testing, selling, offering for sale, importing and/or licensing in the United States licensed assisted access (LAA) mobile devices, including at least the Razer Phone (collectively the "Accused Infringing Devices") in an exemplary manner as described below.

24. The Accused Infringing Devices are subscriber stations sometimes referred to as user equipment ("UE"), which support LTE-Advanced connectivity and LAA technology.

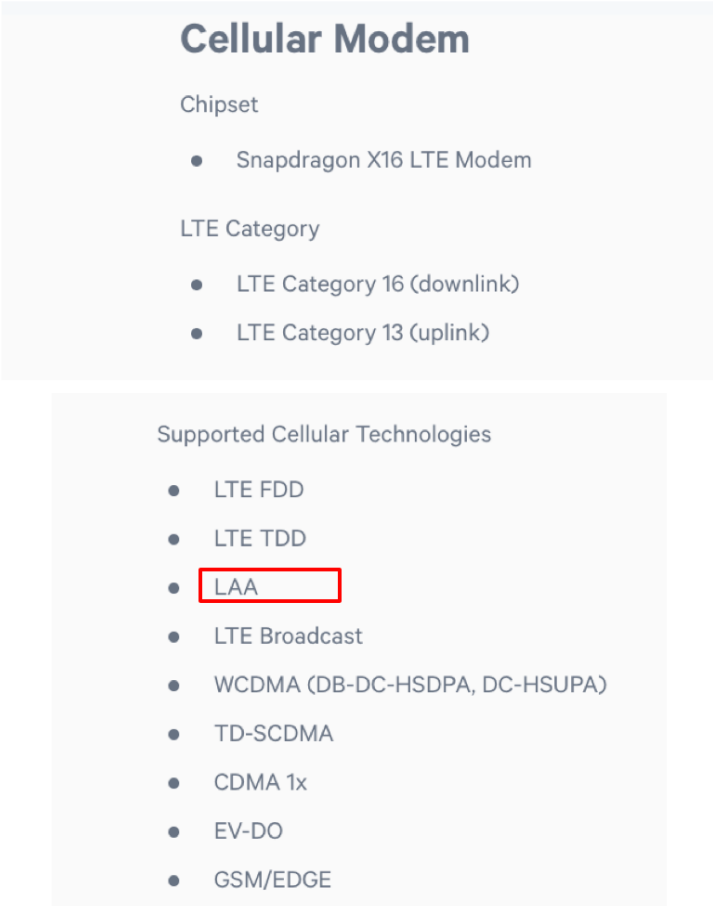



https://www.qualcomm.com/snapdragon/smartphones/razer-phone
https://support.razer.com/mobile/razer-phone






https://www.qualcomm.com/products/snapdragon/processors/835




https://www.qualcomm.com/products/snapdragon/modems/4g-lte/x16

25. The Accused Infringing Devices contain a front end module configured to establish a service with a base station in a licensed spectrum and to

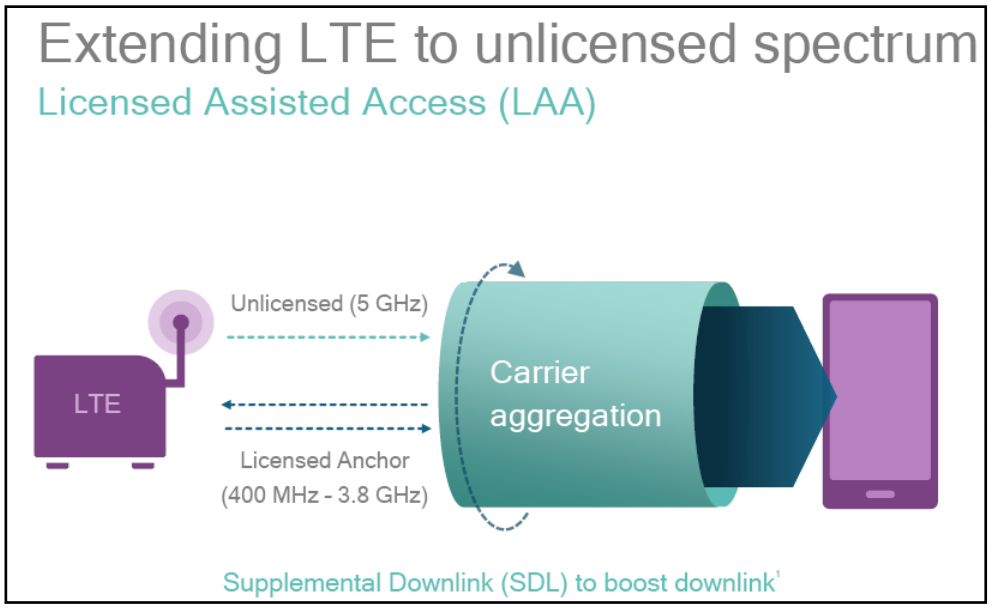
transmit a message to the base station to determine availability of the service via a non-licensed (alternatively referred to as "unlicensed") spectrum. For example, the Accused Infringing Devices contain front end components that convert information into radio signals that can be transmitted and received over the air.

**RFFE (RF Front-End):**

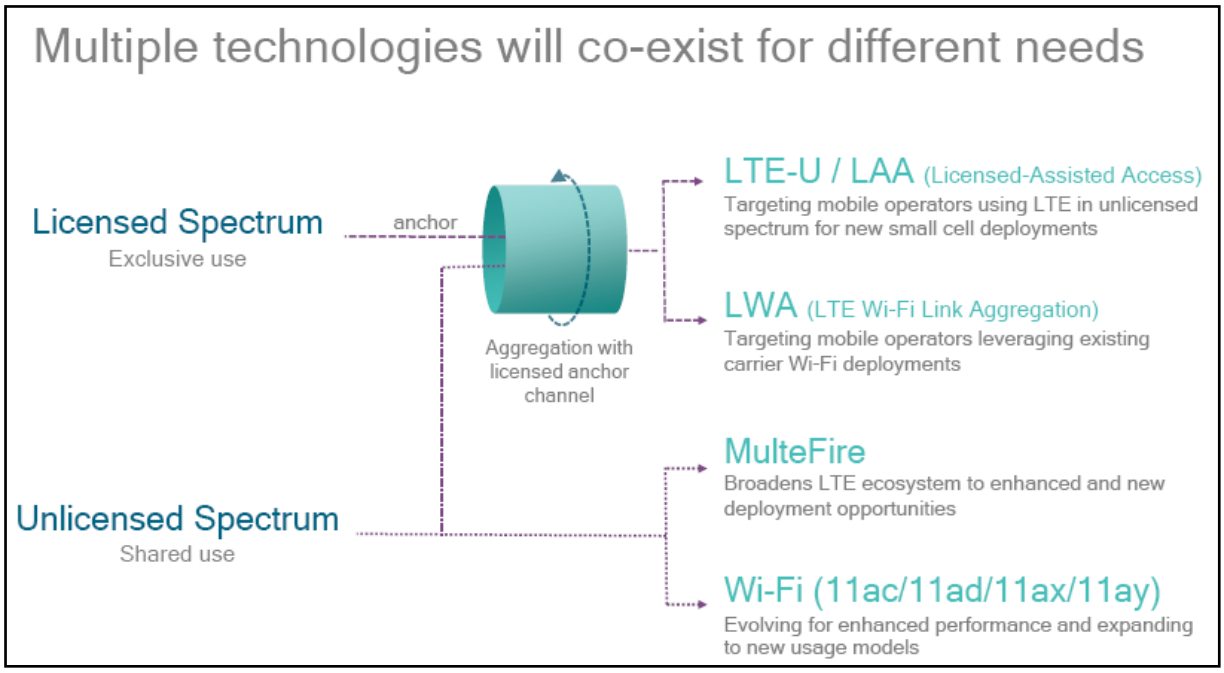
RF Front End (RFFE) refers to a set of mobile device components that convert information into radio signals that can be transmitted and received over the air. RFFE components work in conjunction with a device's modem and antenna.

https://www.qualcomm.com/news/onq/2017/02/23/mwc-2017-fundamentals-cheat-sheet

26. Being LAA-enabled UE, the Accused Infringing Devices are configured to establish a service with a base station ("eNB") in a licensed spectrum and to transmit a message to the base station to determine availability of the service via a non-licensed spectrum.




https://www.qualcomm.com/media/documents/files/laa-webinar-feb-2016.pdf




https://www.qualcomm.com/documents/progress-laa-and-its-relationship-lte-u-and-multefire

27. The Accused Infringing Devices contain a mobility monitoring module. For example, the Accused Infringing Devices include a mobility monitoring module within its cellular baseband processor, such as the Qualcomm Snapdragon x16 LTE modem.

https://www.qualcomm.com/news/onq/2017/10/13/lg-v30-and-snapdragon-835-unite-premium-photography-security-and-mobile-vr

28. The Accused Infringing Devices contain a mobility monitoring module configured to determine a first value of a mobility factor of the subscriber station wherein the mobility factor is determined from values of one or more metrics concerning communications between the base station and the subscriber station. For example, the Accused Infringing Devices will make radio resource management measurements representing values of one or more metrics that are reported to LTE LAA-enabled base stations.

## 5.5 Measurements

### 5.5.1 Introduction

The UE reports measurement information in accordance with the measurement configuration as provided by E-UTRAN. E-UTRAN provides the measurement configuration applicable for a UE in RRC_CONNECTED by means of dedicated signalling, i.e. using the *RRCConnectionReconfiguration* or *RRCConnectionResume* message.

The UE can be requested to perform the following types of measurements:

- Intra-frequency measurements: measurements at the downlink carrier frequency(ies) of the serving cell(s).
- Inter-frequency measurements: measurements at frequencies that differ from any of the downlink carrier frequency(ies) of the serving cell(s).
- Inter-RAT measurements of UTRA frequencies.
- Inter-RAT measurements of GERAN frequencies.
- Inter-RAT measurements of CDMA2000 HRPD or CDMA2000 1xRTT or WLAN frequencies.

ETSI TS 136 331 V13.8.1 (2018-01)

https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/13.08.01_60/ts_136331v130801p.pdf

29. The Accused Infringing Devices use metrics including one or more of frequency offsets, correlations of known signals, and variation of received signal power. For example, the Accused Infringing Devices use metrics such as RSSI, RSPR, and RSRQ, which represent and/or provide one or more frequency offsets, correlations of known signals and variation of signal power.

### 6.3.6 Other information elements

– *UE-EUTRA-Capability*

The IE *UE-EUTRA-Capability* is used to convey the E-UTRA UE Radio Access Capability Parameters, see TS 36.306 [5], and the Feature Group Indicators for mandatory features (defined in Annexes B.1 and C.1) to the network. The IE *UE-EUTRA-Capability* is transferred in E-UTRA or in another RAT.

***crossCarrierSchedulingLAA-DL***
Indicates whether the UE supports cross-carrier scheduling from a licensed carrier for LAA cell(s) for downlink. This field can be included only if *downlinkLAA* is included.

***csi-RS-DRS-RRM-MeasurementsLAA***
Indicates whether the UE supports performing RRM measurements on LAA cell(s) based on CSI-RS-based DRS. This field can be included only if *downlinkLAA* is included.

***downlinkLAA***
Presence of the field indicates that the UE supports downlink LAA operation including identification of downlink transmissions on LAA cell(s) for full downlink subframes, decoding of common downlink control signalling on LAA cell(s), CSI feedback for LAA cell(s), RRM measurements on LAA cell(s) based on CRS-based DRS.

***rssi-AndChannelOccupancyReporting***
Indicates whether the UE supports performing measurements and reporting of RSSI and channel occupancy. This field can be included only if *downlinkLAA* is included.

ETSI TS 136 331 V13.8.1 (2018-01)
https://www.etsi.org/deliver/etsi_ts/136300_136399/136331/13.08.01_60/ts_136331v130801p.pdf



5.1.1 Reference Signal Received Power (RSRP)

| | |
|---|---|
| Definition | Reference signal received power (RSRP), is defined as the linear average over the power contributions (in [W]) of the resource elements that carry cell-specific reference signals within the considered measurement frequency bandwidth.<br>For RSRP determination the cell-specific reference signals $R_0$ according to TS 36.211 [3] shall be used. If the UE can reliably detect that $R_1$ is available it may use $R_1$ in addition to $R_0$ to determine RSRP.<br><br>If higher layers indicate measurements based on discovery signals, the UE shall measure RSRP in the subframes in the configured discovery signal occasions. For frame structure 1 and 2, if the UE can reliably detect that cell-specific reference signals are present in other subframes, the UE may use those subframes in addition to determine RSRP.<br><br>The reference point for the RSRP shall be the antenna connector of the UE.<br><br>If receiver diversity is in use by the UE, the reported value shall not be lower than the corresponding RSRP of any of the individual diversity branches. |
| Applicable for | RRC_IDLE intra-frequency,<br>RRC_IDLE inter-frequency,<br>RRC_CONNECTED intra-frequency,<br>RRC_CONNECTED inter-frequency |

NOTE 1: The number of resource elements within the considered measurement frequency bandwidth and within the measurement period that are used by the UE to determine RSRP is left up to the UE implementation with the limitation that corresponding measurement accuracy requirements have to be fulfilled.

NOTE 2: The power per resource element is determined from the energy received during the useful part of the symbol, excluding the CP.



5.1.3 Reference Signal Received Quality (RSRQ)

| | |
|---|---|
| Definition | Reference Signal Received Quality (RSRQ) is defined as the ratio $N \times RSRP / (E\text{-}UTRA\ carrier\ RSSI)$, where $N$ is the number of RB's of the E-UTRA carrier RSSI measurement bandwidth. The measurements in the numerator and denominator shall be made over the same set of resource blocks.<br><br>E-UTRA Carrier Received Signal Strength Indicator (RSSI), comprises the linear average of the total received power (in [W]) observed only in certain OFDM symbols of measurement subframes, in the measurement bandwidth, over $N$ number of resource blocks by the UE from all sources, including co-channel serving and non-serving cells, adjacent channel interference, thermal noise etc.<br><br>Unless indicated otherwise by higher layers, RSSI is measured only from OFDM symbols containing reference symbols for antenna port 0 of measurement subframes. If higher layers indicate all OFDM symbols for performing RSRQ measurements, then RSSI is measured from all OFDM symbols of the DL part of measurement subframes. If higher-layers indicate certain subframes for performing RSRQ measurements, then RSSI is measured from all OFDM symbols of the DL part of the indicated subframes.<br><br>If higher layers indicate measurements based on discovery signals, RSSI is measured from all OFDM symbols of the DL part of the subframes in the configured discovery signal occasions.<br><br>The reference point for the RSRQ shall be the antenna connector of the UE.<br><br>If receiver diversity is in use by the UE, the reported value shall not be lower than the corresponding RSRQ of any of the individual diversity branches. |
| Applicable for | RRC_IDLE intra-frequency,<br>RRC_IDLE inter-frequency,<br>RRC_CONNECTED intra-frequency,<br>RRC_CONNECTED inter-frequency |

ETSI TS 136 214 V13.5.0 (2017-10)
http://www.etsi.org/deliver/etsi_ts/136200_136299/136214/13.05.00_60/ts_136214v130500p.

30. The Accused Infringing Devices initiate transfer of the service from the licensed spectrum to the non-licensed spectrum associated with the base station based on the first value of the mobility factor. For example, an Accused Infringing Device ("UE") can initiate transfer of the service from a licensed to non-licensed spectrum via a measurement report triggering event. One such exemplary triggering is Event A3, which specifies that a UE will initiate transfer if RRC conditions for a neighbor cell (a Secondary Cell ("SCell") on non-licensed spectrum) become better than those of the Primary Cell ("PCell") (on licensed spectrum) to which the UE is presently camped.

> 5.5.4 Measurement report triggering
>
> 5.5.4.1 General
>
> If security has been activated successfully, the UE shall:
>
> 1> for each *measId* included in the *measIdList* within *VarMeasConfig*:
>
> 2> if the *triggerType* is set to *event* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable cells for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig*, while the *VarMeasReportList* does not include an measurement reporting entry for this *measId* (a first cell triggers the event):

ETSI TS 136 331 V13.8.1 (2018-01)

31. Razer has thus infringed and continues to infringe at least claim 7 of the '425 patent by making, using, testing, selling, offering for sale, importing and/or licensing the Accused Infringing Devices.

32. Razer's acts of direct infringement have caused, and continue to cause, damage to CellTran, and CellTran is entitled to recover damages sustained as a result of Razer's wrongful acts in an amount subject to proof at trial.

**PRAYER FOR RELIEF**

WHEREFORE, CellTran, respectfully prays that the Court enter judgment in its favor and against Razer as follows:

a. A judgment that Razer has infringed the '637 patent;

b. A judgment that Razer has infringed the '425 patent;

c. A judgment that CellTran be awarded damages adequate to compensate it for Razer's past infringement and any continuing or future infringement of the '637 patent and the '425 patent, including pre-judgment and post-judgment interest costs and disbursements as justified under 35 U.S.C. § 284 and an accounting;

d. That CellTran be granted its reasonable attorneys' fees in this action;

e. That this Court award CellTran its costs; and

f. That this Court award CellTran such other and further relief as the Court deems proper.

**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, CellTran demands a trial by jury for all issues so triable.

Dated: Septemer 6, 2018

FEINBERG DAY ALBERTI LIM & BELLOLI LLP

By: */s/ M. Elizabeth Day*
M. Elizabeth Day

Attorneys for Plaintiff
Cellular Transitions, LLC